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SAFETY CONSCIOUSNESS

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F. S. CRAWFORD

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DEPARTMENT OF COMMERCE - BUREAU OF MINES

SAFETY CONSCIOUSNESS[1]

By F. S. Crawford[2]

Safety devices and guards are often looked upon as the last word in safety by the men around the shop or large industrial plant. However, thorough knowledge of the details of their jobs and of the dangers attending them are even more important.

It should be unnecessary for all men to go through the experience of the first man to meet an unknown danger, but that appears to be about the only way by which many learn. Practically every danger connected with the job around a mine, blast furnace, steel mill, foundry, coke oven, cement mill, or other operation, was encountered for the first time by someone, and if he was fairly fortunate he either got hurt or just missed being injured and lived to tell his "buddies" how it happened; he spread the knowledge of that particular danger. Sometimes, but not often, a man can foresee a danger. If he could always be on guard and remember everything he had ever learned and also know everything that had happened to the other fellow, and then let that knowledge keep him aware of the dangers in his own immediate "job," so that he would work the safe way for both himself and the other fellow, he would have what safety engineers call "safety consciousness."

Being safety conscious is a fine attribute, as it really means knowing all about one's job. A man who is really safety conscious is one of the best and most efficient workmen in the whole plant. The boss wants men of that kind—men who want to learn and who try to learn every little detail about their job—where there is danger of spoiling the heat or getting burned by hot metal in a steel plant or of loading rock instead of coal or ore in a mine. Such men know how to do whatever job they are on easily and with the least amount of hard work and at the same time get it done as quickly as possible with safety. A man who is safety conscious has to nearly all intents and purposes developed eyes in the back of his head, if he is in a big mill where there if something going on all around him. These eyes are not real eyes, but they are what might be termed a sixth sense which he has developed by his experience in the mill as well as in other dangerous work which he may have done before in other plants.

There may be occasions when a man's safety consciousness will leave him for just a short time; this is likely to happen when he is thinking about a quarrel he had with his wife which has not been cleared up happily, or perhaps when he has bought too many things on installment and with sickness at home

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can not meet all his bills. It may happen when the day is hot and sultry, or when it is bitterly cold. When the weather is hot perhaps a man will not have as clear a brain as in more moderate weather, and he should be more careful. When it is cold, he is apt to be numbed or cramped, or his movements may be hampered by heavy clothing; he may not be in the best physical condition, and he may not have his mind on his work.

To guard against temporary lapses of memory and inattention, which may result from poor physical condition or worry, the proper thing to do in any operation is to guard everything where guarding is possible. Install safety devices, make systematic and periodic inspections of the condition of machinery, and replace worn parts long before they may be expected to fail from being worn out and thus cause the loss of life or limb and perhaps damage to other property.

In spite of all the guarding we may do occasionally some man has an accident and is killed or badly injured; something may fall accidentally, and if a man is in the way he will get hurt. If the man is not in the way the accident may happen just the same, and while nobody will get hurt there is likely to be some property damage. Strive to look ahead for the possibility of an accident and if possible prevent it; then nobody gets hurt by being in the way because nothing happens that is not foreseen.

There are really very few true accidents because an accident is an occurrence out of the ordinary, which could not be foreseen. If we take into account the possibilities of accidents, we will stop nearly all possible chance of accidents occurring and be prepared to handle those other hazards that can not be eliminated. After a man has had enough experience and ability to qualify him to perform his assigned duties he is supposed to be able to foresee what will happen in the ordinary run of his work and be prepared to take certain precautions against things that would happen if he did not take the proper precautions. Although guards and safety devices have their proper place they are useless unless a man employs them right. Guards and safety devices are essential. They should be kept in place and in operation at all times to take care of the sudden failures man would not have time to handle because they happened so quickly, but the safety device is useless unless the man responsible for its operation takes the necessary precautions to see that it is in working order at all times.

The foreman in any plant bears the immediate responsibility for the safety of his men and for efficient work. He should know the details of all the jobs under him and be able to instruct each of his men in the dangers and difficulties in his individual job. To impress upon a man some of the dangers in his job it is sometimes well to give him a practical demonstration, if that is possible without ruining machinery or other property. Although that demonstration does not replace a guard, it is more effective with the workman than any mechanical guard because he has been given a mental picture of the danger and should know what dangers to avoid. After all, the things which we know best are those which we have actually experienced; if the experience can be gained under the safe conditions of a demonstration a man will remember the demonstration better than something about which he has merely been warned.

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We ought to stop occasionally when we are thinking about safety in our industrial operations to consider what has happened in past history. If we had enough records we could trace our ancestors for countless years. Nobody really knows how the first man started, but the men who dig up rocks with the skeletons of animals in them, which have been turned to stone, have put all their findings together and worked up a science called "geology." These men tell us the world is many millions of years old and that men appeared in the world much later than the creation of the world itself. The first men lived in jungles and had to fight fierce wild animals with their bare hands, but they had brains and intelligence enough to learn something from every hair-breadth escape. The men who didn't have the intelligence to learn from experience didn't live long enough to be fathers, so everyone now living is descended from jungle men who had enough safety consciousness to avoid wild animals.

Today we should take a lesson from the lives of those remote ancestors of ours and do our part in taming the "jungle animals" of our daily civilized life. The wild beasts of today are all about us, but if we keep alert and familiar with the details of our job we can keep them so far in the background that we will hardly know they exist. The fierce beasts about our plants to-day are the dangers surrounding us, ready to come into action when we make a mistake. Another way of looking at this is that when we break a law of nature something is bound to happen. Learn the laws of nature, and you can avoid accidents; the fact that a casting will fall to the floor unless a strong chain is holding it up is one of the laws of nature as is the fact that loose overhead material in a mine will fall unless it is properly timbered. If a man is under the casting or the loose overhead material when it falls he will get killed or injured.

No one who has learned by experience to be careful, realizes that the laws of nature are always in force, and knows what to expect goes around the world in fear and trembling thinking he is going to be hit any minute. A man who learns to be safety conscious keeps his mind open to new ideas, finds the best and safest way of doing the jobs which he has to do every day, and then starts a good habit by doing the job the right way every day. If he finds by unfortunate experience or from conversation with the superintendent, foreman, safety engineer, or some other workman that he is doing some parts of his job unsafely, if he is of the right type he changes to the safe way at once and makes that good habit take the place of the old bad habit.

It should not be necessary for every man to go through the dangers others have experienced before him to become a safe worker; if he is to be a safe worker he must go through these dangers mentally, after learning what has happened to others and may happen to him. Therefore, after this he does his work with his eyes open and senses alert, ready to recognize the danger someone else has pointed out to him in advance. In that way he will be using his mind and will get the experience he needs without getting hurt at the same time.

What every man needs and should try to get of his own accord is education; he should aim to know all he possibly can about what has happened in his own occupation in the past and keep learning new things about his job from time to time.

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From the record of what has happened in the past we learn what may happen in the future. By studying accident records and trying to find the real cause of accidents we will get some value out of them and some education without going through the actual danger. We get the thought into our minds that "Here's something for which I must watch out." If we let our minds picture the possibilities of injury from the new thing we have heard we will at times at least get it to stick in the back of our brain, where it is ready to jump up like a guard whenever we encounter that particular danger.

To get reports on injuries caused by accidents is not enough; every injury, besides being given immediate first-aid treatment, should be followed by an accident report. In addition, every man should be encouraged to make reports on slips, falls, material falling, and an endless number of other things which fortunately happened without injuring anyone but are unexpected. In that way, an effective safety department can build up a plant experience which can be passed on to the whole plant in the form of education as well as guards and alterations in methods of working which will make the chances of injury less from the accidents reported.

Nearly all accidents can be avoided if people will take the trouble to think beforehand. The brain is the best safeguard there is in the world if it is properly trained. If all workers would take the trouble to learn as much as possible about what they do and about their surroundings and keep on learning, instead of one safety inspector in a plant every man in it would be an assistant safety inspector and could pass on his ideas to the safety inspector, safety engineer, or superintendent. Two heads and two pairs of eyes are always better than one, and in a large mine or industrial plant a hundred brains and a hundred pairs of eyes can always have more thoughts and see more things than one. The worker should not leave it all up to the safety man or foreman. If some dangerous practice is seen warning should be passed along to the gang and the rest of the plant through the boss. Perhaps this will be the means of keeping a child happy because some dangerous condition has been reported which would have killed or badly injured his "daddy."

One of the worst results of the accidents in our industrial plants, mines, and factories, is that young mothers are compelled to neglect their children while they work to get enough to feed them. To see a young unmarried man suddenly struck down is regrettable in the extreme; he has his loved ones too, but he at least has not the responsibility of a family.

No matter what their race or the degree of their intelligence, every man and woman cares for someone and wants to keep that person with them. This is true of all the bosses and officials of mines and industrial plants, as well as of the workers. The big trouble with some of the heads of factories, mills, and mines is that they are so busy trying to make both ends meet that they feel forced to make safety work wait until they have the mine or plant on a better paying basis. They are just as sorry as anyone else that John Smith got killed because the hoist rope broke when he was on the cage or because some machine too light for the job broke down. The trouble with such managers is that they

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haven't yet realized it is possible to run plants safely as well as economically and make more money than they could by allowing unsafe conditions and methods of working to continue; in other words they have not yet found safety consciousness. There are far too many managers who have put little or no time or thought into safety work and are probably deep in a rut of complacency out of which they will not budge; they are jogging along content to pay the compensation and insurance the State requires and believe that having paid the medical and compensation charges they have done their full duty. They believe that an accidental injury is an "act of God." It takes a hard jolt to make many men of this type realize that they ought to be preventing men from being killed and injured instead of merely paying the bill and that to do a good job of safety work the efficient manager must give freely of personal time and effort. Once a manager is aroused to the need of expending personal effort as well as instructions on safety work, and experiences the happiness that comes with knowing that he is keeping the families of his employees happy, the safety work goes forward. In some of our largest operations men are not killed, and work for years without losing a day's time from injury. Usually under these conditions there is an appreciable dollars and cents saving to the plant.

Six years ago one of the largest limestone companies in the world was working complacently along having about 50 comparatively serious accidents and some deaths every year. About that time the president of the company was aroused to his responsibility for the safety of the men working under him by a visit from the safety director of one of the factories to which he sold limestone, where they had an enviable record for safe working. After this meeting he started the safety work in his own quarry and other operations connected with the plant. A safety director was appointed, central and departmental safety committee meetings were started, and results began to be apparent. The output increased every year, the accidents decreased every year, and the lost time from delays in operation was decreased. In 1929 this company had no lost time from accidents in its quarry and screening department, which made up practically all of the operation. In all operations there were only two accidents in 1929. Up to September, 1930, there was only one in all departments for the year. The biggest factor in attaining a practically perfect safety record unquestionably was the active aggressive personal interest of the president of the company.

The head officials of any company must be squarely behind the safety movement or it generally gets nowhere. Next in importance to the active leadership of the president at this limestone quarry was the alert interest of every man in the operation, obtained through his freedom to express his ideas when serving on his departmental safety committee and the freedom of the department managers to express ideas in the central safety committee. Action upon the ideas found to be sound followed the committee meetings.

Every mine or plant should have a central safety committee headed by the highest official and composed of the heads of the main divisions in the plant. This committee should meet monthly or twice a month and the "highest official" should by all means be present and participate actively in all or

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nearly all of these meetings. Each minor division should have its own safety committee which meets weekly to go over its own portion of the plant. On their trip through the plant, members of the safety committee should talk to all or nearly all of the men and get their suggestions for increasing safety. They should also caution and correct men who are working unsafely. They should then hold a short meeting, recording their observations for the central safety committee. Anything which can be corrected immediately without waiting for the indorsement of the central safety committee should be handled without delay. The central safety committee acts largely as a clearing house for ideas originating in one department to be passed on to the others.

By periodical analysis of conditions and a willingness to face the facts and to apply the remedy combined with the willing cooperation of all of those in the mine or plant from the highest officials to the lowliest worker, lives are saved and families kept happy. Every mine or industrial worker should do his part when called on to serve on a safety committee and should also pass on his ideas to the committee when not serving on it. Every official should do his utmost to see that all conditions in and around the mine and plant are as nearly accident proof as feasible and should not stint personal effort to bring about this happy, and in the end, paying, situation. When this spirit pervades the organization it can be said to have acquired safety consciousness. If our jungle fathers were able to be safety conscious, surely their descendants should be able to do as well.

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